DOCUMENT RESUME

ED 085 425 UD 013 807

AUTHOR Ogletree, Earl J.
TITLE Why is the Socially Disadvantaged Child Retarded? A Rationale and New Concept of Human Development.
PUB DATE [73]
NOTE 30p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Child Development; Cognitive Development; Disadvantaged Environment; *Disadvantaged Youth; Early Childhood Education; *Early Experience; Economically Disadvantaged; *Educational Retardation; Enrichment Experience; Growth Patterns; *Human Development; Physical Development; Progressive Retardation; Self Actualization; *Socially Disadvantaged

ABSTRACT

Volumes have been written on the socially disadvantaged. Two theories related to the disadvantaged have evolved: the first is the "deprivation theory" which stresses the importance of an enriched environment, during the early years, on the cognitive and emotional development of the child; the second is "the cumulative intellectual deficit theory," which points out that the child's emotional and intellectual deficit increases as he passes from grade to grade. No one has been able to fully explain the cause for and process of the diminishing organismic development of the disadvantaged child from a restricted, impoverished environment. The author attempted to provide such a rationale as to the "how" and "why" of the resulting influence of deprivation by means of a theory of human development which included the new concept of bioplasmic forces, etheric or growth forces on which Russian scientists and others have been doing research since 1939. Prior to this, a theoretical foundation in child development was established and normal growth patterns were examined. The author attempted to explicate the stages in child growth by means of the concept of controlled-movement over locomotive, speech and cognitive development. (Author/JM)

FILMED FROM BEST AVAILABLE COPY

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

WHY IS THE SOCIALLY DISADVANTAGED CHILD RETARDED? A RATIONALE AND NEW CONCEPT OF HUMAN DEVELOPMENT

Earl J. Ogletree

ED 085425

Volumes have been written on the socially disadvantaged. The literature has edequately described their familial and socio-economic mileau and the efforts of poverty and deprivation on their experiences, language and cognitive development. Two theories related to the disadvantaged have evolved: The first is the "deprivation theory" which stresses the importance of an enriched environment, during the early years, on the cognitive and emotional development of the child". The second is "the cumulative intellectual deficit theory, which points out that the child's (emotional and intellectual) deficit increases as he passes from grade to grade ", (Ornstein 1973)

Many of these children are found to be functionally retarded in language and the ability to do the abstract thinking required to read, write and count. Allen (1970) states, "These children and adults are, in the main, at the borderline and mildly retarded levels of deviation in measured intelligence".[2] This "...deficit tends to increase cumulatively and leadsto permanent retardation". (Ausubel 1965).

However, no one has been able to fully explain how and why (the cause for),the diminishing organismic development of the disadvantaged child from a restricted, impoverished environment. The author will attempt to provide such a rationale as to the "how" and "why" of the resulting influence of deprivation by means of a theory of human development which includes the new concept of bioplasmic forces, etheric or growth forces on which Russian scientists and others have been doing research since 1939.(Ostrander, et al. 1971) Prior to do this we must

UD 013807

establish a theoretical foundation in child development, an examination of normal growth patterns. The author will attempt to explicate the stages in child growth by means of the concept of controlled-movement over locomotive, speech and cognitive development.

CONTROLLED-MOVEMENT

Motor control: The first premise we begin with is that human development is a process by which the human being gains greater and greater voluntary control over himself, i.e., his motor, speech and cognitive development. For example, the new born baby has no voluntary controlled movements; his movements are chaotic. Soon after birth, control of movement develop in a descending order from the head downward.

The growing child begins with movement control of the eyes, the mouth, the entire face, descending over the neck, which gradually allows the child to turn and lift its head. Then voluntary control of movement gradually descends further to the arms and hands; here the child develops the ability to co-ordinate eye-and hand movement (hold hands), and by the third month to reach for objects. By the third month, the child rolls over, by the fifth month pulls to sit, and at five and a half month sits without support. By the first year of life voluntary movement control has descended yet further enabling the child to stand alone and walk. In a period of a year, he has developed a minimal level of voluntary control over his motor system. (Frenhenburg. et al 1969 and Weihs, 1971)

Language control: Accompanying this descent in movement-control of motor development is the development of language. Lenneberg (1969, p. 636) states:

> Since motor development is one of the most important indices of maturation, it is not unreasonable to assume that language development

too, is related to physical growth and development. It is also interesting that language development correlates better with motor development than it does with chronological age.

The child gains gradual mastery over the finer muscles of mouth, lips, tongue and larynx. From the first months he increasingly gains control over his speech organization through the stages of cooing, babbling, saying (imitation of words), naming, then speech or talking.

Just as there is a descent of voluntary control of movement during the first year of life from the head through the trunk to the limbs, there is also a descent of language development of grammatical sequence, from the cognitive through the affective (emotional), to the active limbs or psychomotor realm. The noun corresponds to the head (cognitive), the adjective to the feeling realm - the heart, etc. (affective), and the verb to the active limbs (psychomotor).

Table I indicates this sequence of language or grammatical sequential development. (Konig 1969, p. 46)

Table I

	Age	Nouns	Adjectives	Verbs
Cognitive	1.3	100%		
Affective	1.8	78%	22%	
Psychomotor	2.0	63%	14%	23%

At each level of motor development the child reaches a certain level of motor-movement control or maturation prior to the development of certain language skills. It is a kind of controlled motor-readiness. It is also known that when the child is struggling for motor-movement control, there is a temporary retardation in language development. Once the child masters a certain phase of motor development the rate of language development accelerates.

There is a transformation of voluntary motor control, i.e., from the movement control of locomotion to an extension and perfection of these movements into the more refined and differentiated movements of speaking.

Cognitive: Locomotion and speech are control motor movements. Speaking is a more subtle and finer control of the muscles of the speech organization than is motor-locomotion. Thinking or cognition can be thought of as a kind of control over one's mind, as the mind shifts from one cognitive level to the next. Piaget has shown that children exhibit stages of mental abilities as they mature. Their minds evolve through a series of intellectual stages as they progress from early childhood through adolescence. Piaget has classified these into four main stages: (Piaget 1964)

I. Sensory-Motor Stage (0-2 years)

II. Preoperational Stage (2-7 years)

III. Concrete Operational (7-12 years)

IV. Formal Operational Stage (12-15 & over)

This transition is the result of the child mastering his locomotion and speech organization to a certain level of maturity, i.e., gaining experiences . As the child gains voluntary movement control over locomotion and speech, he also gains control over his cognitive processes. Therefore, could not thinking be considered a more refined and subtle form of movement? Unlike locomotion and speech there are no muscles involved..., but cognitive operational movement from percept, mental ima) and fantasy, to concept and idea. Modern psychological and neurological theories consider the brain to be a kind of muscle, to develop it must be exercised. There are

certain masturational indices (65% physical maturity), of the development of the brain when learning of a language is optimal. After the brain has reached physical maturation, language acquisition becomes more difficult. (Lenneberg 1969) This may not be a casual correlation, but it does indicate the dynamic nature and optimal developmental characteristics of the brain .

Another indication that the brain is dynamic, which might indicate a subtle form of movement, is the functional basis of the electroencephalograph. It is used to measure noise levels and electro-wave patterns of the brain. The electrodes placed on the scalp of the subject measure 1/1,000,000 of a volt. The recorded noise level of the brain is about 100 times that potential. (Ertl 1972) The EEG Measures the different rhythems of the brain - e.g. beta and alpha waves. To explicate this point further, let us examine the act of process of cognition. For example, when we are attempting to find a solution to a problem we are searching for the correct concept or idea out of the rather vast storehouse of concepts, ideas and experiences we already possess. We labor cognitively to find the proper connection or link between our knowledge and the solution. We sort, select, reshuffle our old concepts. We seek new ideas from other sources to reinforce and refine our knowledge. And the conditions we want for thinking or the sorting out process are quiet and solitude. This type of concentrative think -ing does not take place automatically or effortlessly, but it requires contemplative effort and cognitive work. Mental fatigue is just as real as physical fatigue. In both cases energy is expended. In physical labor energy is expended through overt activity or movement, thinking through covert movement. This hypothesis that thinking is movement is confirmed by Piaget's stages of cognitive development. Piaget's three major stages of development are preoperational, concrete and formal operational and can be

summarized as follows:

TABLE II

Piaget's Stages of Development

Pre-operational (2-7 years)

1. Cannot conserve or hold mental images.
2. Thinking is non-reversible.
3. Thinking is perceptual bound (bound to physical body- the senses).
4. Cannot deal with variables or changes.
5. Little voluntary control over thinking (non-operational).

Concrete-Operational (7-14 years)

1. Can conserve or hold mental images.
2. Thinking is revarsible.
3. Thinking bound to inner-life, emotionally affectively oriented.
4. Thinking is imagery and pictorial, not symbolic.
5. Needs concrete props to support thinking, such as problem solving.
6. Can solve problems with transformations, variables or changes.
7. Has greater voluntary control thinking - (thinking is semi-Operational).

Formal Operational (14...years)

1. Solve problems using symbols and pure concepts, without outer concrete props.
2. He can hypothesis solutions using propositional logic.
3. Thinking is more objective, free of emotional life.
4. Thinking is abstract, flexible and mobile-grouping classification, etc.
5. He can think about his own thinking for the first time.
6. He has greater voluntary control over his thinking processes. (Thinking is fully operationsl).

The theme of increased voluntary control over cognitive processes is the thread of the developmental sequence through the three stages. Each succeeding stage depicts an increased independent and higher level of cognition, a greater and greater manipulative power and control over thinking. The terms pre-operational and operational signify this. The terms are congent and relevant; they accurately describe the cognitive abilities at the different levels. Pre-operational means the inability to operate one's thinking.

It is non-operational, and non-controllable. His physical and experiential maturity are not developed sufficiently at the preoperational level to give him the power to control his own thinking processes. As shown, at this stage, the child cannot conserve, reverse his thinking or deal with variables. Wheras at the concrete operational level, his thinking is operational, i.e., he can control it to a certain degree in terms of conservation and reversibility and the ability to handle variables. The same developmental pattern applies to the formal operational level when the youngster's thinking is more abstract, symbolic, logical, and most importantly more mobile, flexible and free. He can hypothesize.

Piaget also alludes to thinking as movement, when he speaks of operations. He states: (Piaget 1964, pp. 8-9)

> Learning is possible only when there is active assimilation... To understand the development of knowledge, we must start with an idea which is central ... the idea is operations... to know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation ... An operation is thus the essence of knowledge; it is an interiorized action which modifies the object of knowledge ... In other words, it is a set of actions (mental movements) modifying the object and enabling the knower to get at the structures of the transformation.

SUMMARY OF CONTROLLED MOVEMENT

The author has advanced the theory of voluntary control of movement through the stages of locomotive, speech and cognitive development. Thinking is a more subtle form of movement. One could say that the child's mental maturity and acquisition of experiences are dependent on his ability to gain voluntary control over his movements (in all realms of development), and hence his environment. Voluntary-control of movement is an integral part of learning. In essence, voluntary control over thinking

processes is the definition of readiness.

Ilg and Ames (1964) have done extensive studies on the maturational readiness of children. They have discovered, as have others, that there is an orderly pattern of developmental maturation out of which certain kinds of learning and performance fall along an age-readiness scale. This included the capacity to write names, letters, addresses; numbers one-to twenty, complete the "Incomplete man figure, naming of animals in 60 seconds, and copying geometric patterns (horizontal lines, circle, cross, square, triangle, divided rectangle and a diamond). Their most interesting task was the geometric test in that the ability to copy geometric figures fell along a age-readiness scale in the foregoing sequence. This development depends upon maturation, not experience. (Jensen 1969) For example, some children who can easily draw a cross (age 3),or copy a circle (age 2½),or square (age 4), cannot draw a diamond (age 7), but the reverse is not true. Also a child cannot be trained or forced to copy a particular geometric figure prior to the stage of readiness to do so. The intensive training of a five year old in the specific act of drawing a diamond will not only be difficult but ineffective. But at age seven, no training is necessary. These developmental stages are not distinct steps, emerge as a form of instinctive motoric development--relected in evolutionary geometric patterns or forms. Piaget's (1964) study of the geometric operations in young children found that they draw topological structures before the projective and the projective forms before the metric. He says the geometric sequence corresponds"... to something in the natural thought of children.". In light of the voluntary movement-control theory the child needs less control to draw topological forms (circular),than projective forms. The metric forms require the greatest amount of intellectual movement-control. The phenomenon of controlled-movement, which can be extended into other performance

spheres, is dependent on the maturation of the whole organism.

Maturation: Maturational-readiness is based on the phenomenon of organismic growth (a coined phrase for all available growth ages at a given point in the child's development); the growth patterns such as height, age, mental age, dentalage, etc. of a child tend to cluster around a mean. (Olsen and Hughes 1944, p. 60)

> ... i.e., that the various attributes in an individual tend to cluster about a center of gravity of growth of that individual and that the freedom to vary is restricted. This detailed support has been worked out, but the manuscript has not been printed.

Therefore, maturation is a complex organismic pattern which reaches levels or plateaus of development. It is from this orderly sequence of maturation that natural development and the capacity for certain kinds of learning and performance unfold and fall along an age or performance scale. On the other hand, organismic growth patterns occur at different rates. The growth pattern can be slowed down or supported by the quality of the environment; growth can neither be forced or coerced. Growth is a positive, constructive process, and for its optimal development it needs a propitious environment. As Piaget states, the unfoldment of learning capacities are: (Piaget 1964, pp. 30-1)

> ...Tied to the whole process of embryogenesis... (which) ends in adulthood ... In other words, development is the essential process and each element of learning occurs as a function of total development.

Studies and research in child development have long known the simultaneous relationship between physical maturation and intellectual development. Few researchers have ventured to ascribe a cause-effect relationship between these two phenomena. The characteristics of the stages of physical development and the stages of cognitive development such as those

developed by Piaget have been fully described. But we do not know how physical maturation, cognitive development, and readiness are related and unfold.

Let us examine the physical-mental development correlation as it occurs at the pre-operational - concrete operational transitional period at age seven years. Ilg and Ames (1964) conducted a study on the rate of teething in relation to school readiness with first grade children. They found that those children (96%),who were ahead of schedule in teething were definitely ready for and could profit from academic school experiences. Those children who were behind schedule in teething (54%),should have repeated (22% did repeat) the first grade. Of those whose teething was both ahead and behind schedule 64% would have benefited by repeating the grade (14% did repeat). Ilg and Ames (1964) reported that subsequent to teething the children seemed to have reached a higher level of mental development. They did ascribe an indirect cause and effect relationship.

What does this mean in terms of the transition between the pre-operational and concrete operational cognitive stages? Teething signifies that the brain has reached about 95% of its development, the head about two-thirds of adult proportion, and now the child is ready for academic learning. He has had a change in mental development; he has crossed the bridge from the preoperational to the concrete levels of thinking. He now has greater control over his thinking, it is free; it is less sense bound.

At the transitional period between the concrete and formal operational, ages 13-15 years, Nisbet (1964) found that the attainment of puberty correlated with increased achievement on intellectual and academic achievement tests. That is, adolescents who had attained puberty performed

better on intellectual tests than adolescents who were still at the pre-puberty stage, although the subjects were the same ages.

IMPLICATIONS FOR THE SOCIALLY DISADVANTAGED

Socially disadvantaged: One of the most cogent consequences of the socially disadvantaged child's retardation in his slower rate of transition from the pre-operational. Almy (1964) tested the conservation ability of inner-city second graders using Piaget's liquid test ("the establishment of identity when he sees the liquid in one vessel poured into another of a different shape"). She found that "... only 23% of the second graders were able to conserve consistently," an indication that the transition rate from the preoperational to the concrete operational transpired at a slower rate. Ausubel thinks that the transition rate takes place more slowly and hence completely at both transitional levels. These findings were confirmed by Ogletree (1971) who studied one-hundred first and second grade inner-city children in terms of teething, age level and conservation. He found that their average age was 6.7 years and 80% had begun teething, only 19% were able to conserve. This would indicate a general retardation in maturational and organismic development. In terms of school readiness, Ilg and Ames (1964, p. 20) calls these children "reality-bound".

> Such children abstract poorly and find it difficult to learn through the more usual methods of teaching.

The existing intellectual deficit is compounded by the fact that they are less able to profit from new experiences. They are intellectually overwhelmed by the exposure to new learning which exceeds their experiential background and level of cognitive readiness.

Jensen (1968, pp. 36-37) defines educability to mean" ... the ability to learn school subjects by means of classroom instruction." To be educable the child must possess such cognitive skills as,

1. Voluntary control of attention,
2. The perception of order,
3. Self-initiated rehearsal of newly acquired behavior,
4. Self-reinforcement for successful performance.

In short, learning is possible only where there is active assimilation. The child must act upon it. (Allport 1960, pp, 184-85)

> Learning is not a passive absorption but an active response ...content acquired through manipulation (cognitive manipulation - self-rehearsal), does not evaporate so rapidly.

He is not able to act upon the intellectual learnings, hence the cumulative deficit is a result of the slower rate of organismic growth.

Organismic growth rate patterns exist in varying degrees. The rate of development can be nurtured or slowed down. Growth or maturation cannot be forced or coerced. A positive, propitious environment is required to attain full organismic growth. Anderson (1954, p. 1178) states,

> Man is not only a product of his environment, for in a real sense man is also a victim of the environment.

In the case of the socially disadvantaged, the environment dominates and presses the child, so to speak. In fact, it suppresses his development. The environmental press can be such a dominating force in terms of being dissonance, hyperstimulation, chaos, poor nutrition, lack of social or human intercourse, love, etc., that in extreme cases simulated idiopathic hypopituitarism (physical, emotional and cognitive atropism),can result (Powell et al. 1967 and Winik 1969, Montagu 1970) In England they found that working class (lower-socioeconomic),youngsters

twelve years of age were as much as 1¼ inches shorter than their middle class peer at age fourteen. This difference applied to other physiological and psychological measurements as well. (Children and Their Primary Schools 1967). Of course, there are different levels of environmental domination; each youngster will respond differently and be effected differently. It is evident that a low quality environment will affect the rate and quality of the organismic pattern. Anderson (1954) sees this phenomena as psychological and physiological entropy, which he calls the degradation of psychological/biological energy levels. The result is a slowing down in the organismic growth rate because of the decrease in biological energy. In this same light Ausubel points out that the plasticity of human intelligence decreases with age, and with the socially disadvantaged the plasticity of development diminishes at a faster rate, compared with children raised in more propitious environments. The disadvantaged child seems to become fixed in a cognitive or learning style prematurely, and is less flexible and open for new experiences. In other words, his development is incomplete in terms of his full potential. He is retarded, his development is arrested prematurely.

How and why does the environment have such a deliterious effect? Let us take Anderson indications of biological and mental energy in relation to entropy, and explore its nature.

NATURE OF GROWTH FORCES OR ENERGY FORCES

Let us look at a phenomena that we see and experience, but of which we are not fully cognizant. That phenomenon is the process of growth. Organisms grow and develop. We know the child grows from the head downwards; plants grow upward. Each germinate from a sperm and a seed, respectively. We see the child grow and we see the plant grow. We perceive the stages, and through an accelerated photographic process we can actually see a plant growing.

However, we cannot perceive the process, that which is causing it to grow. Perhaps we could look at it from another point of view.

Growth and movement require energy; just as a ball propelled through the air requires the use of energy by the thrower. As an automobile racing down the highway is propelled by the combustion of the engine under its hood, so human growth is powered by an energy force. We could call this energy-growth forces. Is this not a valid approach? After all, no one has ever seen magnetism or electricity, only its effects and end products, etc. Nevertheless, we borrowed from the macrocosmic world, our planetary system and galaxy, to explain the chemical and material world by means of the atomic theory, which is a microcosmic picture of our universe. The scientific theories explain the physical world; they become laws because they consistently explain physical phenomena. Why cannot one use the same approach to describe the phenomenon of human growth and development? We can use the model or theory of growth forces to test facts and phenomena against it. What are these growth or energy forces which facilitate human growth?

In recent years the Russians have done extensive research in the area of parapsychology, which included studies on the energy body. Their research is based upon scores of experiments done on living plants, animals and human beings using sophisticated electronic equipment. Ostrander and Schroeder (1971, p. 214) visited Russian research centers and reported in their book, Psychic Discoveries Behind the Iron Curtain that the energy body,

> ...is a brand-new idea in Soviet biology...But throughout the ages it's been called the 'subtle body', the 'etheric body', 'fluidic body', 'beta body' 'counter body, 'pre-physical body' to name a few.

The energy, etheric or biological plasma body consists of, (Ostrander, p.214)

> Some sort of elementary plasma-like constellation made of ionized, excited electrons, protons and possibly other particles, but at the same time, this energy body is not just particles. It is not a chaotic system. It is a whole unified organism in itself. It acts as a unit ...and as a unit gives off its own electromagnetic fields and is the basis of biological fields.

The scientists report the dynamic energy body to have a specific spatial organization. "The biological plasma of the energy body is specific for every organism, tissue and possibly bio-molecule". The specificity determines the form of the organism. (Ostrander...,p. 213) (Perhaps this is the reason for the rejection of organ transplants).

The bio-plasmic body contains energy levels that sustain the development and replacement of cells. The concept of energy or current flow stems from the ancient Asiatic theory or knowledge that the physical organs are temporary deposits of a number of currents which move continously at various speeds throughout the body. It is known that the substance of the liver is changed in the course of ten days, the brain takes much longer, while it is almost six months before you find new molecules in the bones. The organ is the result, the current the creator. The Russians scientists photographed the energy or bio-plasmic body. They concluded, (Ostrander..., p. 202)

> ...the energy body didn't seem to be merely a radiation of the physical body. The physical appeared somehow to mirror what was happening in the energy.

Another piece of evidence that seems to confirm the existence of an etheric or bio-plasmic body is the phenomenon of the phantom limb. Persons who have a missing limb often continue to sense the missing arm or leg as if it were still there. Research by Weinstein and others (1964) have shown that among 101 born with missing limbs, 18 had clear

perceptions of phantom-limbs.

In the development of body schemes in children, it was found that there was no difference between blind and normal children in the development of the body scheme with respect to hand-perception. This indicates the child's visual perception of all limbs. (Arnim 1967) Since the development of the body-scheme is not dependent upon the physical limbs, therefore the phantom limb or the bioplasmic limb must be the basis for the development of the body-scheme. That is, the phantom or bioplasmic limb contain the dynamic processes or energy forces of growth, which facilitate the development of the physical limbs, when present. The phantom limbs grow and develop just like the physical limb, except it is non-material, invisible. Steiner (1955) referred to this as the functional gestalt, the ether-body or the body of the formative forces of growth. He asserted that human development and the accompanying development of a body-scheme in childhood is the birth or the freeing of the child's formative or etheric forces of growth. The task of the bioplasmic or etheric forces is to change the minerals of the physical body from an inert to an active state, keeping the minerals in their proper proportion (e.g. maintains from in hemoglobin of the blood cells and the transfer of exygen to the tissue cells, making possible the renewal and regeneration of organs and body cells). The etheric body is in continuous motion and metamorphosis, maintaining and developing all the body elements that are necessary to keep the organism functional and healthy. (Knauer 1964)
Let us examine art of acupuncture.

The ancient Chinese method of healing by acupuncture (the placement of fine needles in one of the 800 nerve centers on the skin),is based on the

flow of etheric or bioplasmic currents through /out the body. (Moss 1972) The blockage of one or more of these channels brings on illiness - an imblance in the organism. These bioplasmic forces, which flow along meridians or channels, effect the flow of blood to effected tissues. The objective of acupuncture is to balance the bioplasmic flow in that, (Moss ..., p. 8)

> ...good health (is defined as)... a free and unimpeded circulation of energy - the life forces - flowing from organ to organ along an invisible network of intercommunicating channels.

The Russians scientists also photographed the moment of death in plants and animals, (Ostrander ..., p. 216)

> ...Russians saw sparks and flares of the bioplasmic body shooting out into space swimming away and disappearing from sight. Gradually there was no luminescence at all coming from the dead plant or animal.

They hypothesized that the energy coming from the dying physical body is the dispersing bioplasmic body. This could be what Anderson (1954) refers to as physical entropy - the degradation of physical energy.

TRANSMUTATION OF BIOPLASMIC FORCES

Now that we have established the existence of the invisible bioplasmic etheric forces, let us examine their function in human development.

As indicated the change of teeth occurs at age seven as does the transition between the preoperation and concrete operational levels of cognition. One could say that since the brain has reached 95% of its physical development, the change of teeth at this period signifies that

most of the forces of physical growth have completed, to a certain degree, their task in the development of the brain and head. These growth forces are then released for the forces for thinking, (as indicated thinking does take energy and power to become operative - concrete operational). Now the child has reached a higher level of cognitive processes. Just as the growth forces are partially released from the physical body, because of the attainment of a level of physical maturation, therefore so is the thinking released and freed from the physical body (being sense bound at the pre-operational level).

These etheric or growth forces follow definite organic laws. Sieweke (1954) states,

> During the embroyo stage and early development of the child the etheric forces are occupied with physical growth. After that follows a long and difficult path to full maturity, in that the formative (etheric) forces have to be gradually turned away from physical development and used for the activity of emotional and cognitive development.

The metamorphosis mainly takes place during the first fourteen years of life until puberty. The metamorphosis is expressed in seven year rhythms - similar to the stages outlined by Piaget. There is a metamorphosis and interplay of the etheric forces from "outward" (physical), development to "inward" (affective and cognitive), development. There is an ever dynamic interweaving and interaction between physical and non-physical (mental), development.

Jensen (1969, p. 4) elucidates this viewpoint when he points out that the whole of learning is more important then the subskills.

> It is the child's progressing ability to integrate the component subskills that the phenomenon called readiness is most apparent. It is the integrative process, the development of a higher order 'master plan' that depends most upon the maturation of the brain structure.

Jensen (1969) demonstrated this point when he attempted to teach his five year old daughter to play chess. She readily learned the names of the six chess pieces, the placement of pieces on the board and the rules for moving each piece. She was highly motivated, and her learning proceeded smoothly through this cummulative-associative approach. However, when it came to playing a game, putting together all that she had learned"... a game did not emerge." A year later, age six, she had no trouble in playing chess. She had reached a level of maturation and cognitive development where the subskills were intepreted into an organized whole. Based on the bioplasmic theory one could state that the child had thus reached a level of physical maturation. releasing the growth forces for thinking. The child now had more power or energy for greater cognitive control, for manipulation and integration of sub-skills and learning. The child now possessed the cognitive energies, which are transmuted forces of growth to control her own thinking. It is as if the shepherd appeared to gather the flock and established peace and order.

Implications: Viewing physical and cognitive development from this standpoint of metamorphosis, a number of problems related to human development and education seem to fall into place. The theory of transmuted bioplasmic forces could explain the retardation phenomenon of socially disadvantaged children. Let us review the two theories - deprivation and cumulative deficit.

The effects of a deliterious environment can result in various degrees of physical, emotional and intellectual entrophy. For optimal development a harmonous,

compatible, propitious environment is required. The rate of development is affected. Disadvantaged children proceed through the developmental stages at a slower and less complete rate than their middle class peers. The transition from the concrete to the formal operational levels of cognition is slower and incomplete.

The deprived child has cumulative deficits in growth incurred from past deprivation. (Ausubel 1965, p. 158)

> The child who has an existing deficit in growth incurred from past deprivation is less able to profit developmentally from new and more advanced levels of environmental stimulation... his deficit lend to increase cummulatively and to lead to permanent retardation.

The phenomenon is environmental press, domination and disorganization which results in phychological entropy, and hence the degradation of psychological and biological energy. The end result is physical and mental entropy. The plasticity of intelligence tends to decrease with age, limiting the organism's degree of plasticity or freedom to respond developmentally in a certain direction which is compatible to the environmental stimulation. The decrease in plasticity in intelligence is in proportion to the decreased rate of transition from the concrete to the formal operational levels of cognition which is directly proportional to the strength or amount of bioplasmic forces available to the child at the transitional period of cognition.

The retardation is the result of the inadequate development and sustainance of the child's bioplasmic forces during the early formative years. As a result of the restrictive and chaotic stimulated environment, there is a degradation

of the child's growth processes, rather than sustaining them. His energy forces are diss pated. There is a loss of bioplasmic energy. This degradation or dispersement of energy in the human body has been confirmed by Kirlian by his high frequency photography of the bioplasmic body or forces. (Ostrander ..., p. 205)

> Illness, emotion, states of mind, thoughts, fatigue, all make their distinctive imprint on the pattern of energy which seemed to circulate continuously through the human body. (In the pictures, you can see the fingertip of a normal, healthy person, photographed by Kirlian process. The second picture shows the same fingertip of the same person, this time he is fatigued and overstrained. More energy appears to pour out of the body when tired).

One could infer from this that an extreme deleterious environment causes extreme degradation of bioplasmic energy levels. Extreme forms of environment press, etc. during the early critical years of childhood can be responsible for growth retardation, resulting in extreme cases of deprivation simulated idio hypopituitarism. (Powell, et. al. 1967) The depletion of bioplasmic forces during these formative years leaves little energy or growth forces left to be transmuted for cognitive processes later on. Perhaps this is the reason why many inner-city children are not getting beyond the concrete operational level of cognition. The deficit is partly irreversible. The plasticity or forming power of the organism decreases with age. Intelligence becomes differentiated and fixed, compounded by limited experiences and environment and the decreased accumulation of experiences.

How are the bioplasmic forces and human development affected? It has been indicated that the bioplasmic forces are dynamic and in continuous motion throughout the body. One could state that the organs, the physical body are the temporal deposit (result) of these forces or currents moving at various

speeds throughout the body in the building up and regenerative processes. As indicated, when there is an imbalance or distortion in the bioplasmic or formative forces flow illness and pathology result. The human being is a dynamic being, ever interacting with his environment - motorically, emotionally, and psychologically, in moment (remember the author hypothesized the theory of voluntary control of movement in all three realms). Sieweke indicated an interweaving and interaction of the etheric or formative forces for physical, affective and cognitive development, from outer to inner development. Hence it is the child's intercourse with and reaction to the quality and quantity of the environment which effects and interweaves with the movement and flow of etheric or formative forces of growth. It is this invisible liveliness and fluctuation of the formative forces in conjunction with the movements of the organism that nurture or entrophize its development, depending upon the quality of the environment. It would also follow that in order to prevent pathological conditions, such as retardation of development, the movements have to be altered or removed. Then one could go a step further and assume that conduc movements could be implemented to have a healthy and nurturing effect on the formative or etheric forces of growth.* This change in movement would include a change in environmental living and life style, etc., as well as remedial programs in physical and motor development. The essential point is the very intimate relationship of the developing human being and his environment which determines and, in a sense, predicts his future development (cumulative deficit). Sieweke (1959) states, "Any disturbance in the developing etheric forces is imprinted into the physical and psychological constitution".

Readiness: The socially disadvantaged child's problems are compounded further by the fact that he begins school with these deficits. He is therefore less able than his middle class peer to profit from new experiences. He is not cognitively mature.

Most of the research shows the pre-school academic-readiness programs for the disadvantaged, such as headstart, have been "ineffective in producing any (lasting) gains in cognitive development". (Westinghouse et. al. 1970 and Kolberg 1970).

Moore, Moon and Moore's (1972) article cites a number of studies in which children who began reading a year or so later than their peers, surpassed the earlier reading children in reading ability later on in their school career. Cases were cited in which pre-school age children who were exposed to academic learning exhibited a greater number of incidents of maladjustment than children who began their school career at a later age. Also the skill and knowledge retention level of pre-schoolers or cognitively immature learners was much less as compared to later school entrants. It is known that children who are forced into intellectual learning beyong their present capacity or maturation level become "turned off". Early learning seems not only to be inefficient, but there are indications that it results in a lower plateau of learning proficiency.

Premature learning creates a mental blockage, resulting perhaps in a permanent handicap or, at least, a lower ceiling for the subsequent development of a particular skill, e.g. reading. It may even result in permanent cognitive and academic retardation. (Elkind 1969) Research has found negative correlations between early schooling and school success and attitudes toward school.

(Husen 1967) Elkind (1969) states, "The longer we delay formal instruction, up to certain limits, the greater the period of plasticity and the higher the ultimate level of achievement." In other words, the child is allowed to develop and mature without a dominating and pressing intellectual environment. The child's motoric and affective development is permitted to unfold fully and naturally. (Without deviating from the topic, perhaps this is the functional basis of the motor-perceptual development programs developed by Kephart, Fritzhugh, Delacato and others.)

Let us examine these problems in light of the theory of transmuted growth forces for thinking. Cognitive readiness is a matter of the organism reaching a certain level of physical maturation at which time the growth forces can be released to become the energy for thinking processes. Therefore, the pre-school child (pre-operational) does not have enough cognitive energy available to really cognitively act on the learning so as to fully experience intellectual learning, making it a part of his own being. Almy (1964) refers to these learning as pseudo-concepts. The child's learnings are non-transferable to new or different situations. This also explains why later school entrants become more efficient readers than early school entrants. Since the pre-school age learner has been burdened with these pseudo-concepts (which are somewhat non-transferable), he is unable to use them as a foundation upon which to build or to integrate with subsequent skills and learnings. He doesn't have enough cognitive energy to manipulate the concepts, to perceive order or self-rehearse the learning. Hence he cannot experience it. In fact it may condition his style of learning in which cognitive plasticity is reduced in this area of learning.

Looking at the effects of premature or forced learnings, one could state that something never comes out of nothing. To gain one thing, something else must be sacrified. So it is with accelerated or prematurely forced learning or the attempt to speed up the stages of cognitive development; there is an accompanying loss in quality of development. Portman (1966) reports, "Whenever acceleration has occurred there has been a noticable increased susceptibility to certain diseases especially those of psychological origin". Shortened processes of maturing cause maladjustment in inner-city children and in early school entrants. Since learning is hardly ever a purely cognitive process but involves emotins (e.g. interest, motivation, preferences, etc.), it could be that the stress on early intellectual development entropizes emotional development. As the immature learner becomes frustrated and anxiety-ridden, he loses his motivation for intellectual success later on. He becomes "intellectually burned out". In becoming frustrated and psychologically disorganized, the psychosomatic effect produces the atrophy of physiological energy and cognitive energy.

Something else is sacrificed; it is the full physiological development of the organism. It has been stated that energy forces for thinking are metamorphized from the same forces that facilitate physical growth. If the child is forced into intellectual learning prior to readiness, as determined by physical and experiential maturation, the child is prematurely using these forces for psuedo-intellectual thinking, which should be used to develop the physical organism. Hence physical development must be sacrificed, to some degree. What ultimately may be sacrificed is the full development of the vehicle for thinking, the brain.

Research has shown that gross brain changes take place from birth through adolescence, which entails the shifting of cognitive control from the emotional centers to the reasoning centers. (Metcalf and Jordan 1972) If these bioplasmic forces are wasted on attempts at accelerated premature cognition (this is what we attempt to do through compensatory programs), in cognitively immature children, not only is there an entropism of the brain but an inefficient use of these forces at this age level (pre-seven year old), are not totally free from the formative processes of physical development. Forced intellectual thinking at this period in the child's development prematurely drains off a certain portion of these bioplasmic forces (but not enough for effective cognitive processes) which should be utilized for physiological and emotional growth.

The consequence is that there are not enough transformed bioplasmic energy forces to effect the efficiency of thinking (e.g. pre-operational to concrete operational). On the other hand, perhaps the physical body (brain), is being robbed of its full growth potential. One could also state that the overall effect is effect on the young child's total growth pattern - physiologically, emotionally and cognitively. The wasting of these bioplasmic forces leads to accummulative physiological and psychological entropy. The effect is cyclical. Therefore, it is important that these etheric or growth forces be sustained and developed in the growing child rather than being prematurely misused for intellectual learning.

CONCLUSION

It is obvious that the socially disadvantaged child is handicapped by the fact that (according to this theory),his bioplasmic or etheric forces are weak - entrophied. This is a part of his cumulative deficiency. If this theory has any validity, then the way to help the socially disadvantaged child is through the development of this bioplasmic body or forces of growth. The approach would not be the typical academic offerings of our schools today. A new method would have to be found. This does not mean giving new titles to old methods, as have been done in the past, "a more of the same approach". The approach will have to be atypical; the rationale for curriculum development will need to be developed from the child, his developmental stages, learning styles, and supportive of his biological, affective and cognitive needs.

The theory of bioplasmic or growth forces has been rationalized to explicate some of the complexities and integral relationships in human development. The theory, in the opinion of the author, seems to unify and explain the relationship of physical development to mental development and the problems of the disadvantaged. It lays a theoretical foundation for readiness and cognitive development, and the bioplasmic theory may be the key to human development, the road back for the disadvantaged. It could very well revolutionize education.

References

Allan, Robert M., "The Culturally Disadvantaged", ed. Charles H. Carter, Handbook of Mental Retardation Syndromes, Springfield, Ill.: 1970. pp. 244-45.

Almy, Milly, "New Views on Intellectual Development in Early Childhood Education" Intellectual Development: Another Look, ed., Harry Passow ASCD Publications, 1964, p. 24.

Allport, Gordon, Personality and Social Encounter, Boston; Beacon Press, 1960, pp. 184-85.

Anderson, Harold and Gladys Anderson, "Social Development", Manual of Child Psychology, New York: John Wiley and Sons, Inc., 1954, pp. 1178-1180

Arnim, George von, "Imitation and the Body Scheme", The Cressent, Vol. 13, #4, October 1967, pp. 21-22.

Ausubel, David P., "The Effects of Cultural Deprivation on Learning Patterns", Audiovisual Instruction, Vol. 10, Jan. 1965, p. 11.

Children and Their Primary Schools: Report of the Central Advisory Council for Education, London, England; Vol. I. H.M.S.O. 1967, pp. 10-12

Elkind, David, "Piagetian and Psychometric Conceptions of Intelligence", Harvard Educational Review, 1969, pp. 319-337.

Ertl, John, "Goodby I.Q. Hello EI (Ertl Index)", Phi Delta Kappan, October 1972, p. 91.

Frenhenburg, William K. and Dodds, Josiah B. "Denver Developmental Screening Test", (chart), Distributed by Mead Johnson Laboratories

Husen, Torsten, International Studies of Achievement in Mathematics. Vol. II, Uppsola: Almquist and Wiksells, 1967.

Ilg, Frances L. and Louise B. Ames, School Readiness, New York: Harper and Row, 1964.

Jensen, Arthur R., Social Class, Race, Genetics: "Implications for Education", American Educational Research Journal, Vol. V, No. 1, Jan., 1968, pp. 36-37

Jensen, Arthur, Understanding Readiness: An Occasional Paper. Ill.: University of Illinois Press, 1969, pp. 4-5.

Knauer, Sigfried, "Aspects of Anthroposophical Medicine" Unpublished manuscript, 1964, pp. 1-4.

Konig, Karl, The First Three Years of Childhood, New York: Anthroposophical Press, 1969, p. 46.

Kolberg, Lawrence, "Early Education: A Cognitive-Developmental View", Educating the Disadvantaged, (1965-1969). Vol. 1, Parts 1 and 2, ed. Allan Ornstein, New York: AMS Press, 1970, pp. 73-122.

Lanneberg, Eric H., "On Explaining Language", Science, Vol. 164, No. 3880, May 1969, p. 636.

Metcalf, David and Kent Jordan, "EEG Ontogenesis in Normal children", Drugs and Development and Cerebral Function, ed., Lynn Smith, Springfield, Ill.: Charles C. Thomas, 1972, pp. 127-128.

Montagu, Ashley "A Scientist Looks at Love", Phi Delta Kappan, Vol. LI, No. 9, May 1970, pp. 4465-67.

Moore, Raymond, Robert Moore and Dennis Moore, "The California Report: Early Schooling for All?", Phi Delta Kappan, June 1972.

Moss, Louis, Acupuncture and You. New York: Dell Publishing Co., 1972 p. 7-9.

Nisbet, J.D., "Puberty and Test Performances", British Journal of Educational Psychological, Vol. 34, June 1964, pp. 202-203.

Ogletree, Earl J., "Relationship of Teething, Puberty, SES, and I.Q. to the Piaget Tasks with Socially Disadvantaged Children", Unpublished Study, 1971.

Olsen, Willard and Byron Hughes, "Concept of Growth - Their Significance to Teachers", Childhood Education, Vol. XXI, October 1944, pp. 53-65.

Ornstein, Allan C., Urban Education, Columbus, Ohio: Merrill Publishing Company, 1972, p. 6.

Ostrander, Sheila and Lynn Schroeder, Psychic Discoveries Behind the Iron Curtain, New Jersey: Prentice-Hall, 1971.

Piaget, Jean, Piaget Rediscovered, ed., R.E. Ripple and V.N. Rockcastle School of Education, Cornell University, March 1964, pp. 3-37.

Portman, A., "Umzuchtunk des Menschen? Aspekte heutiger Biotechnik", Universitas 21, 1966, pp. 785-803.

Powell, G.F., Brasel, J.A. and R.M. Blizzard, Emotional Deprivation and Growth Retardation Simulating Idiopathic Hypopituitarism: Clinical Evaluation of the Syndrome", The New England Journal of Medicine, June 8, 1967, Vol. 276, No. 23, pp. 1271-78.

Sieweke, Herbert, Anthroposophsche Medizin, Dornach, Switzerland; Philosophisch - Anthroposophsches Verlag, 1959.

Steiner, Rudolf, Education of the Child, Rudolf Steiner Publishing Co., London; 1955, pp. 15-17.

Weihns, Thomas J., Children in Need of Special Care, London: Souvenir Press, 1971, pp. 22-32.

Weinstein, E. Sersen, R. Vetter, "Phantom and Somatic Sensations in Cases of Congenital Aphasia", Cortex, Vol. 1, 1964, pp. 216-290.

Westinghouse and Ohio University, "The Impact of Head Start: An Evaluation of the Effects of Head Start on Children's Cognitive and Affective Development", in The Disadvantaged Child. Joe L. Frost and Glen R. Hawkes, editors, Boston: Houghton Mirflin, 1970, pp. 197-201.

Winick, Myron, "Nutrition and Intellectual Development in Children", Nutrition and Intellectual Growth in Children, The Association for Childhood Education International; Washington D. C., 1969, pp. 25-28.